NOT ADDRESSED

COMPLEXITY

SITE SPECIFICITY

DEPOSITIONAL GEOLOGIC CONTROL

EASTON, CA

1 sq mi

1995-1997 sampled NO3, DBCP

2012 sampled NO3, DBCP, TCP, U

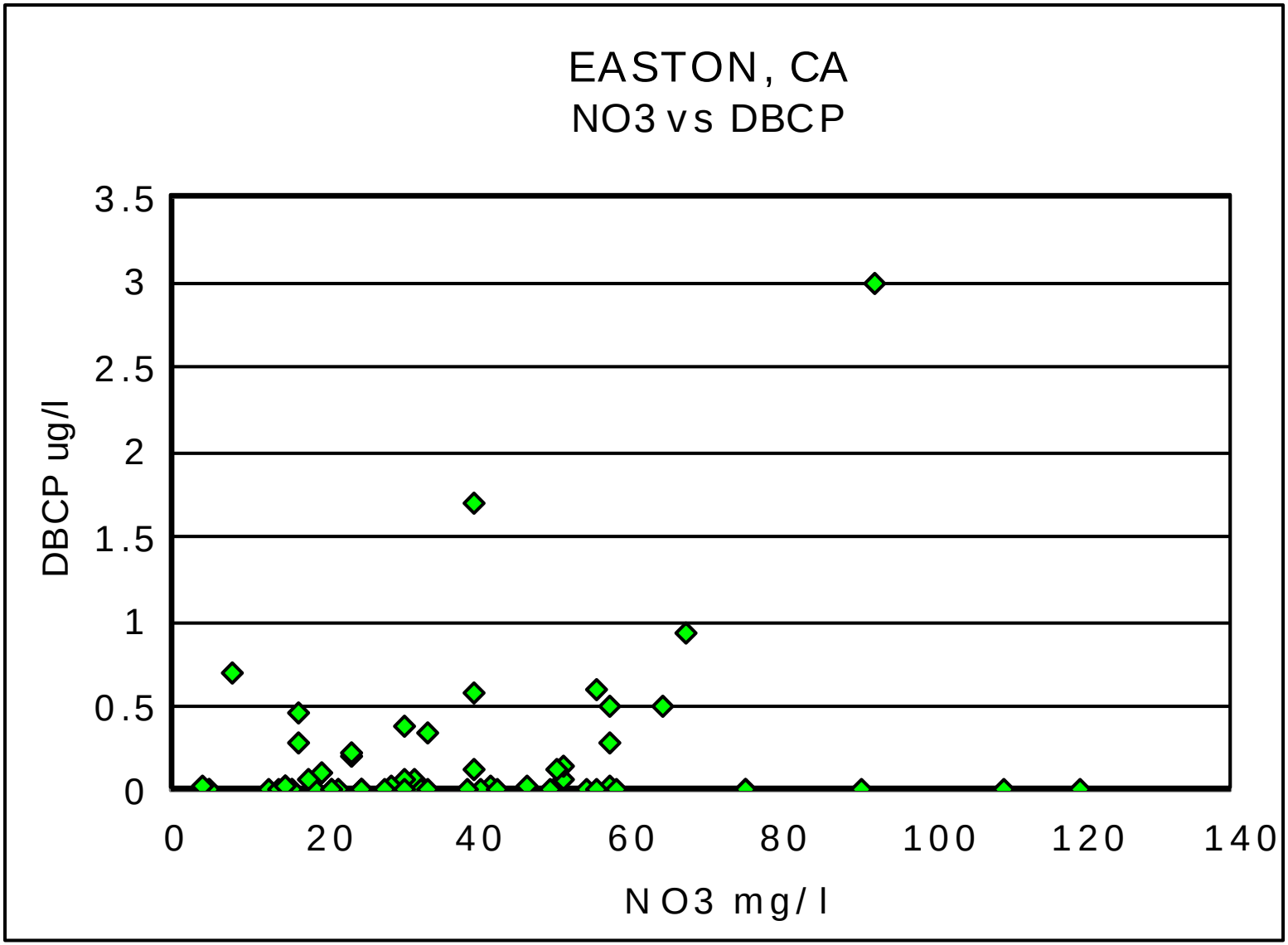
Sources of NO3 – ag, sewage (septic, treatment plant), soil

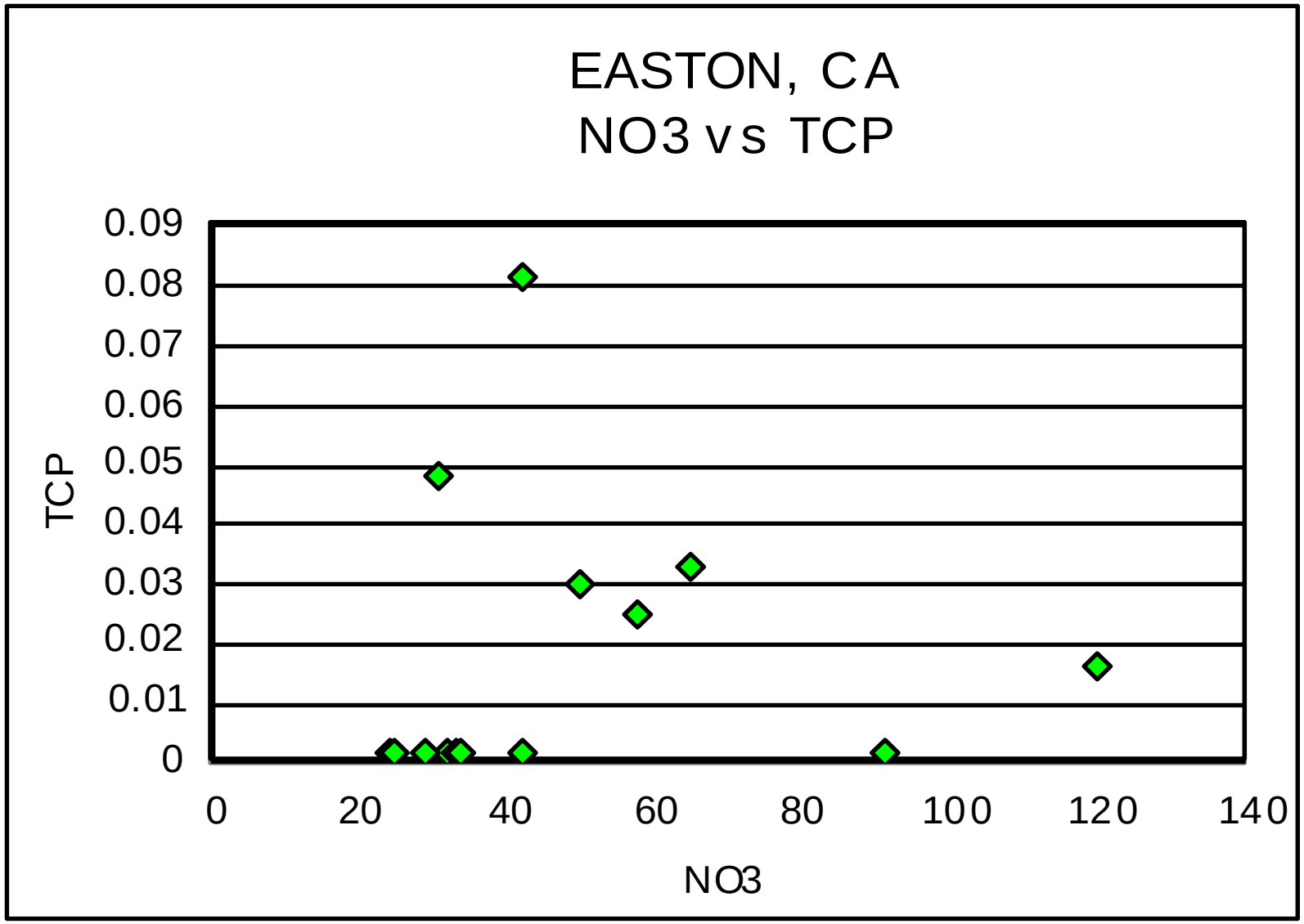
Sources of DBCP – ag

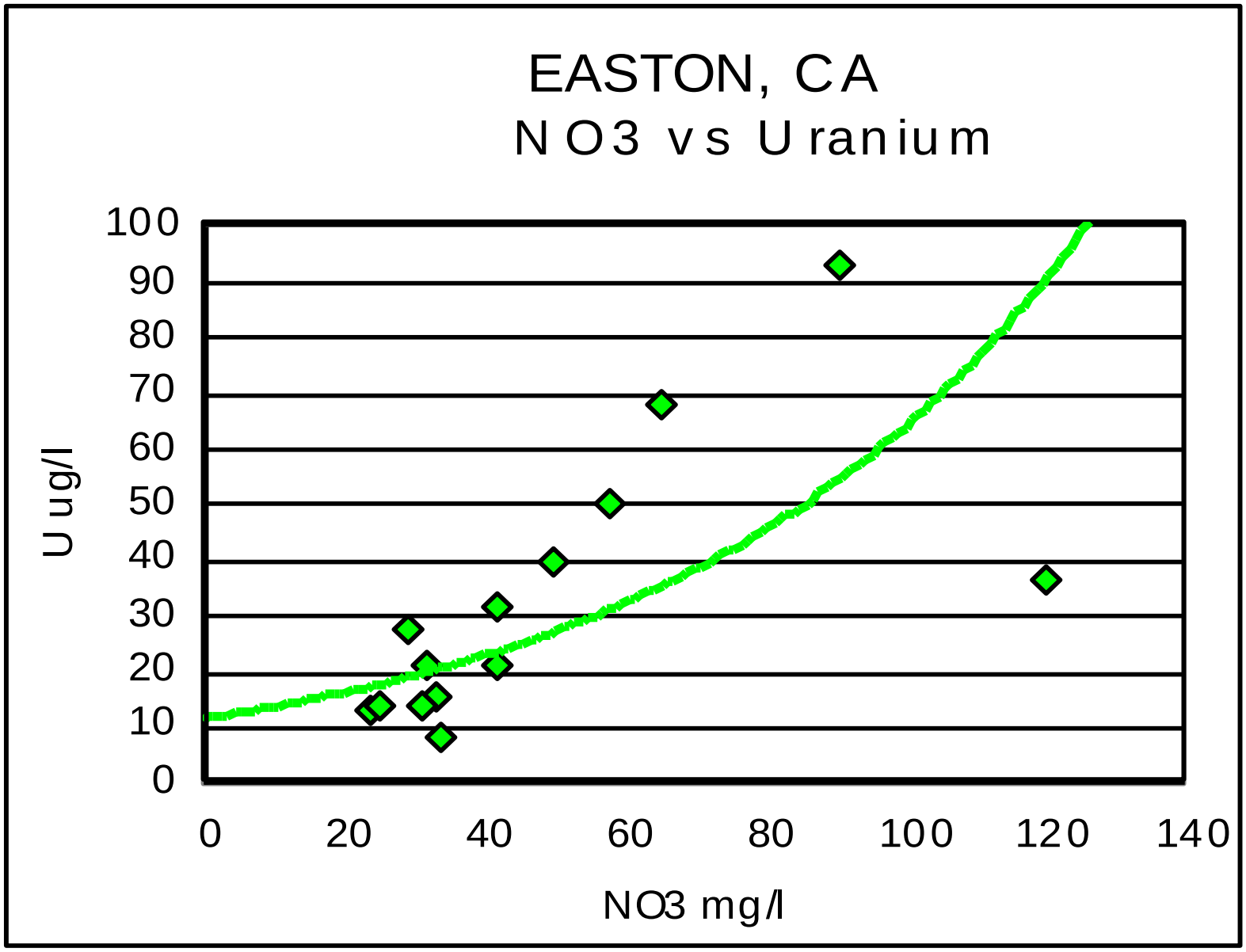
Sources of TCP – industrial, ± ag

Sources of U – natural

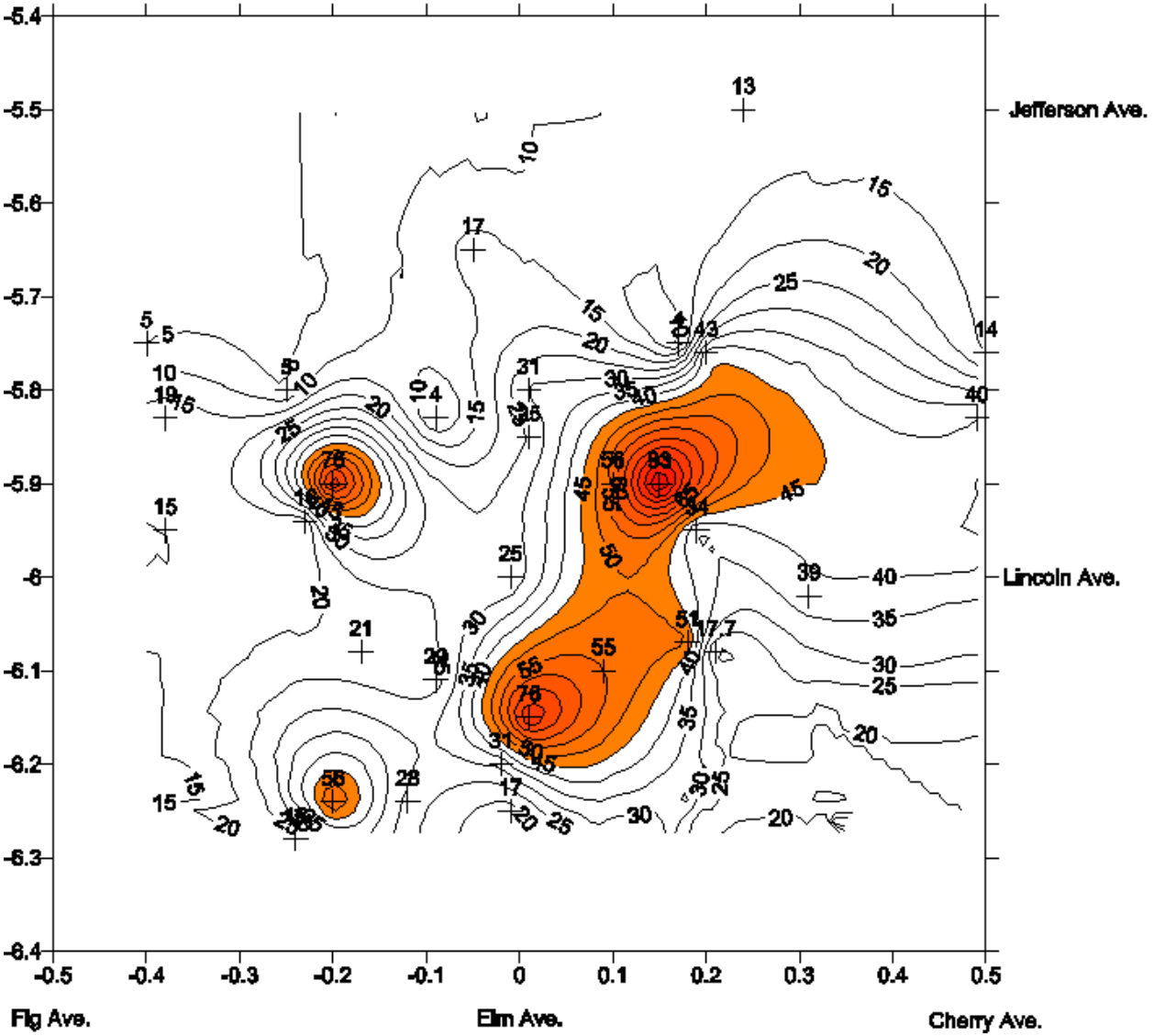
Any correlations?


EASTON, CA
NO3 vs DBCP
DBCP ug/l
3.5
3
2.5
2
1.5
1
0.5
0
0
20
40
60
80
100
120
140
NO3 mg/l

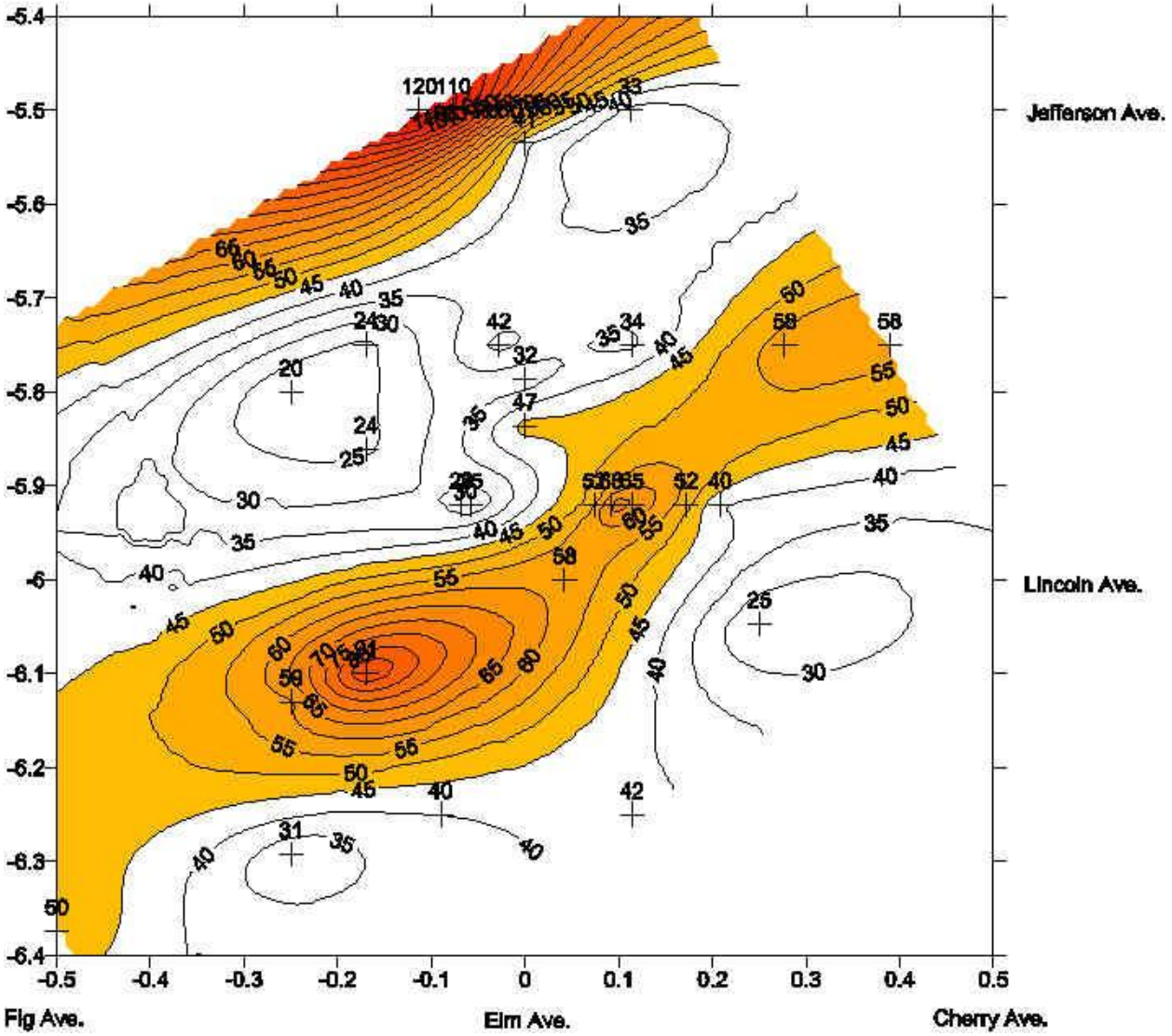

EASTON, CA
NO3 vs TCP
TCP
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
20
40
60
80
100
120
140
NO3


EASTON, CA
NO3 vs Uranium
U ug/l
100
90
80
70
60
50
40
30
20
10
0
0
20
40
60
80
100
120
140
NO3 mg/l

EASTON CALIFORNIA
Nitrate mg/l
1997



EASTON CALIFORNIA
Nitrate mg/l
2012



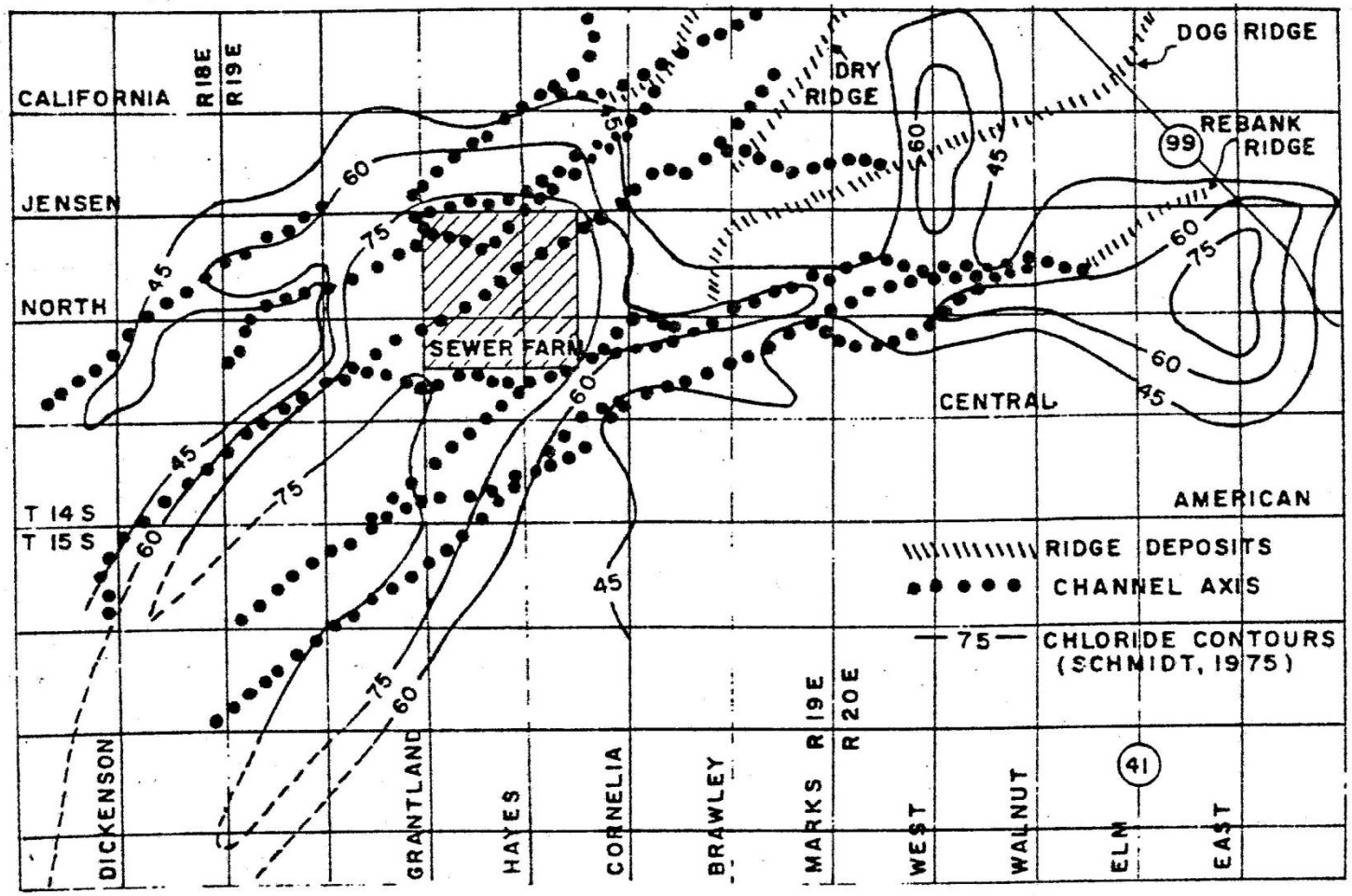
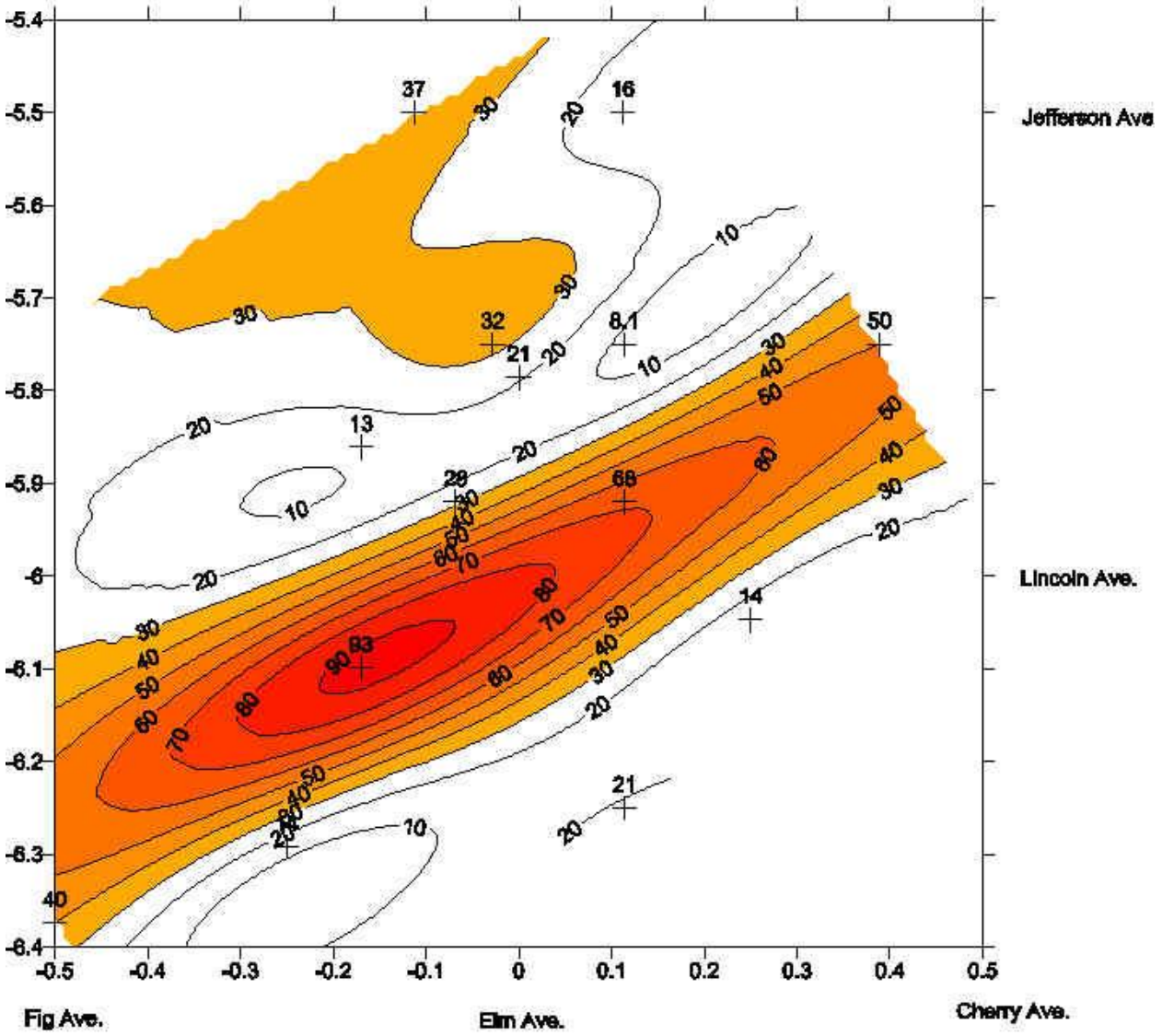
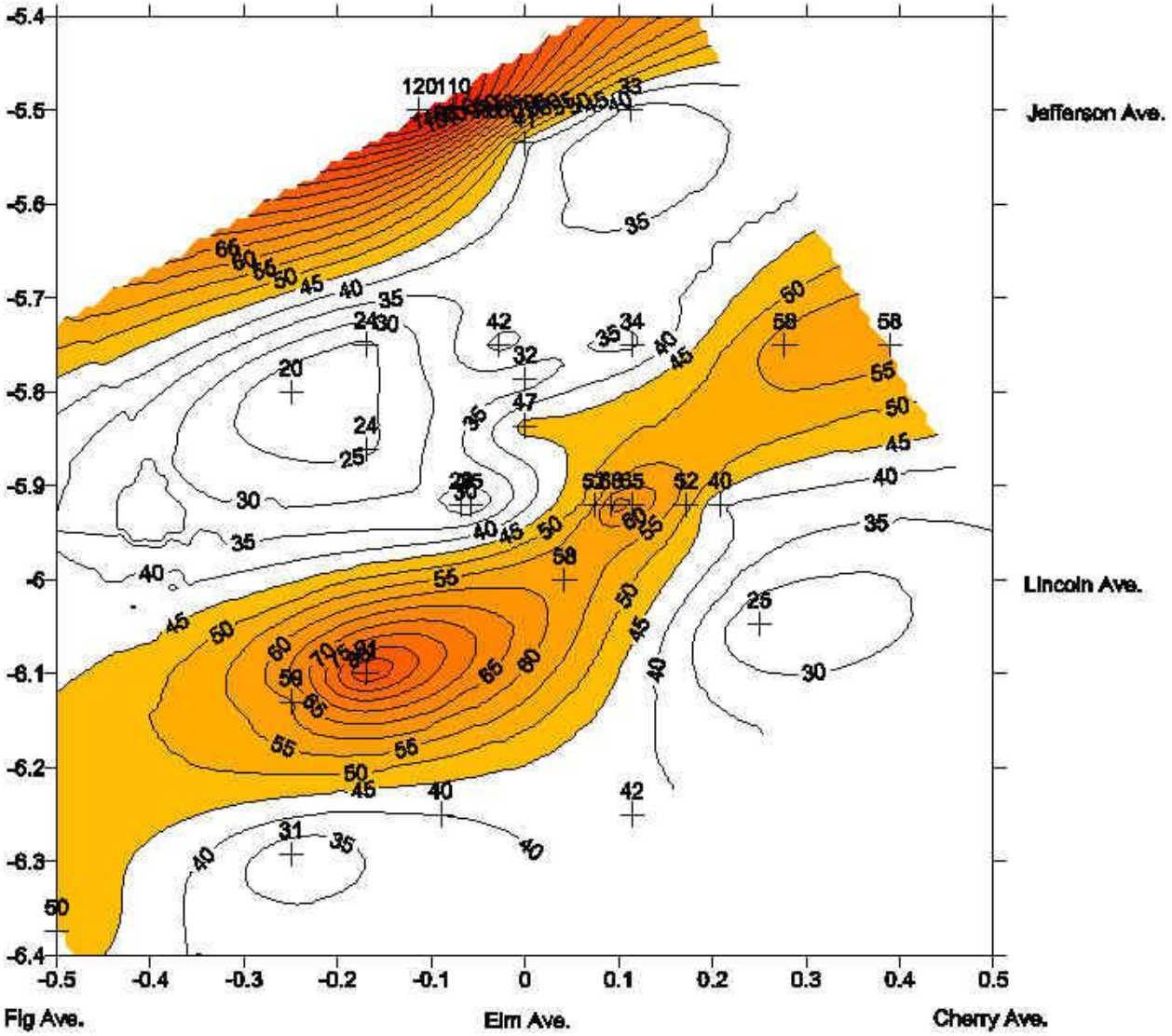


Figure 2. Relationship of Chlorides to Ancient Stream Channels and Ridges in the Vicinity of the Fresno Sewer Farm.

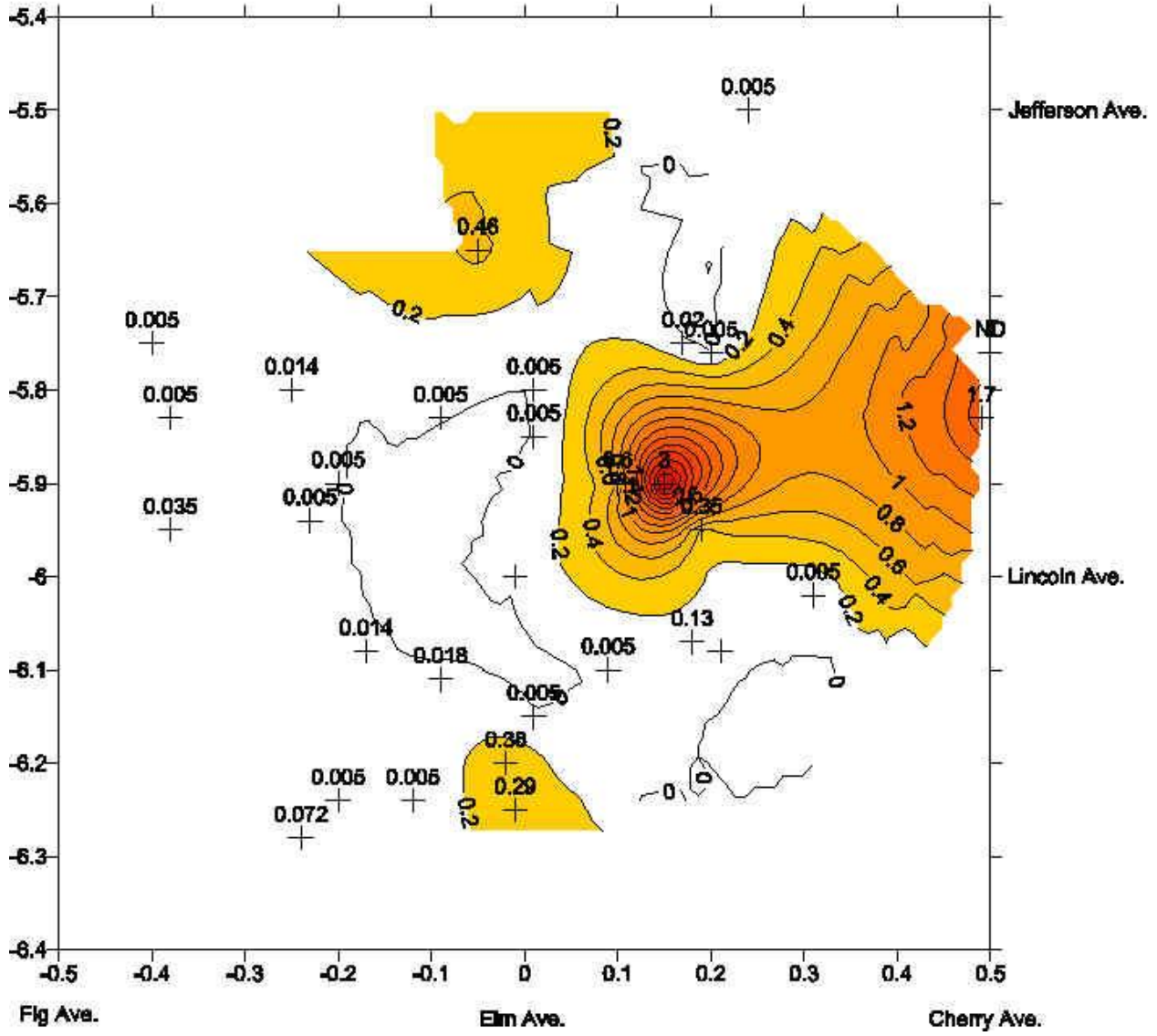
EASTON CALIFORNIA
Uranium ug/l
2012



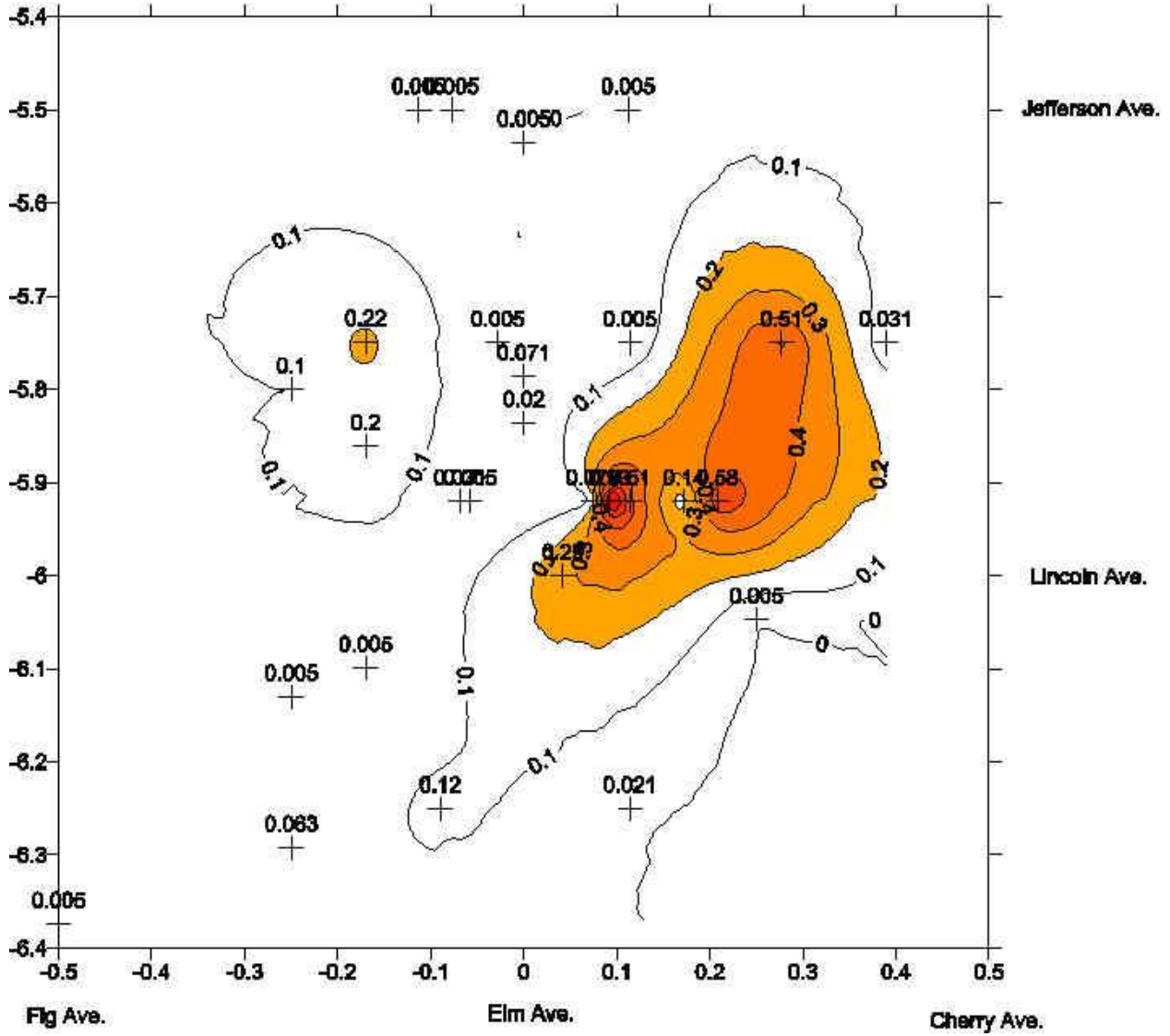
EASTON CALIFORNIA
Nitrate mg/l
2012



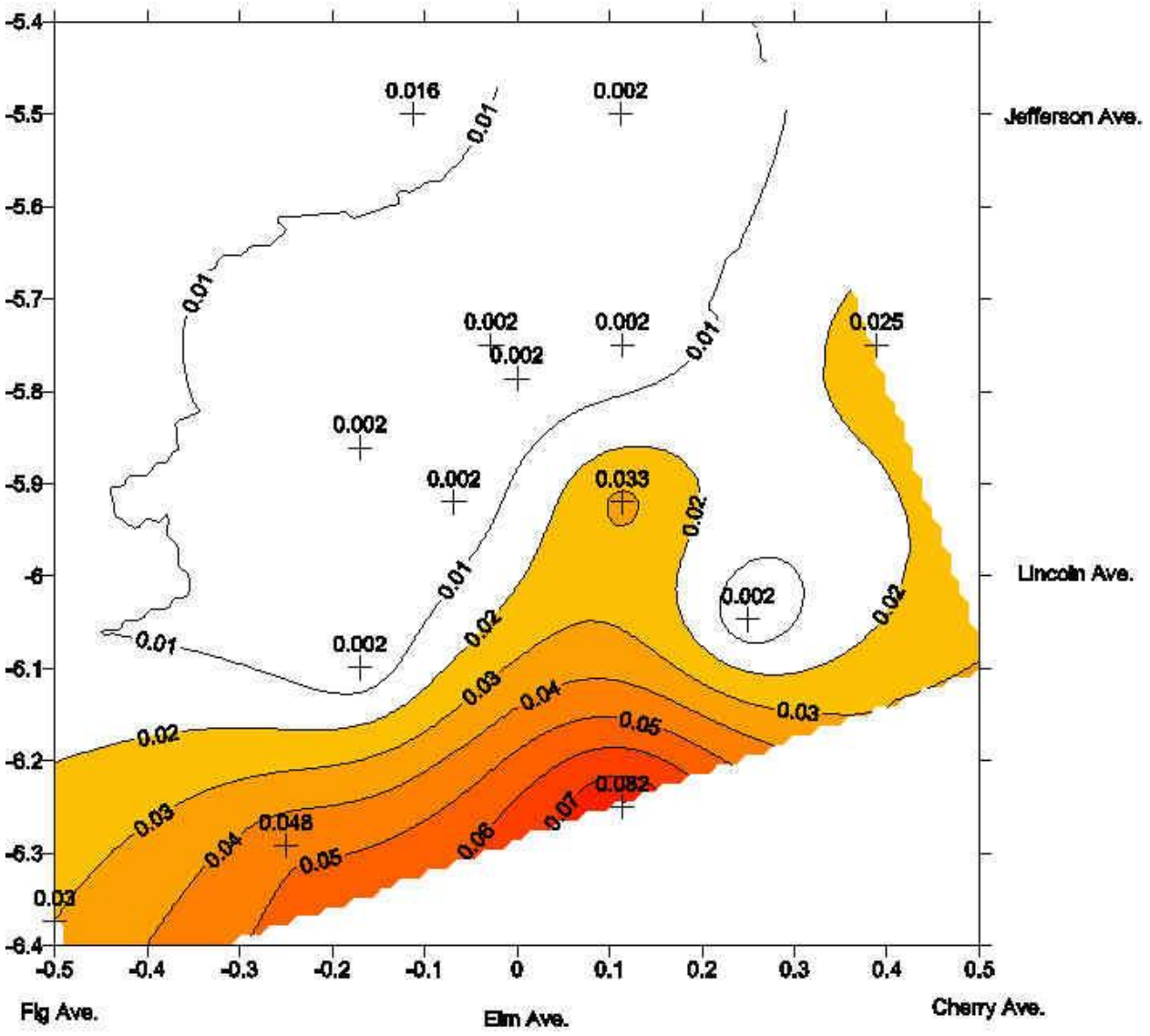
EASTON CALIFORNIA
DBCP ug/l
1997

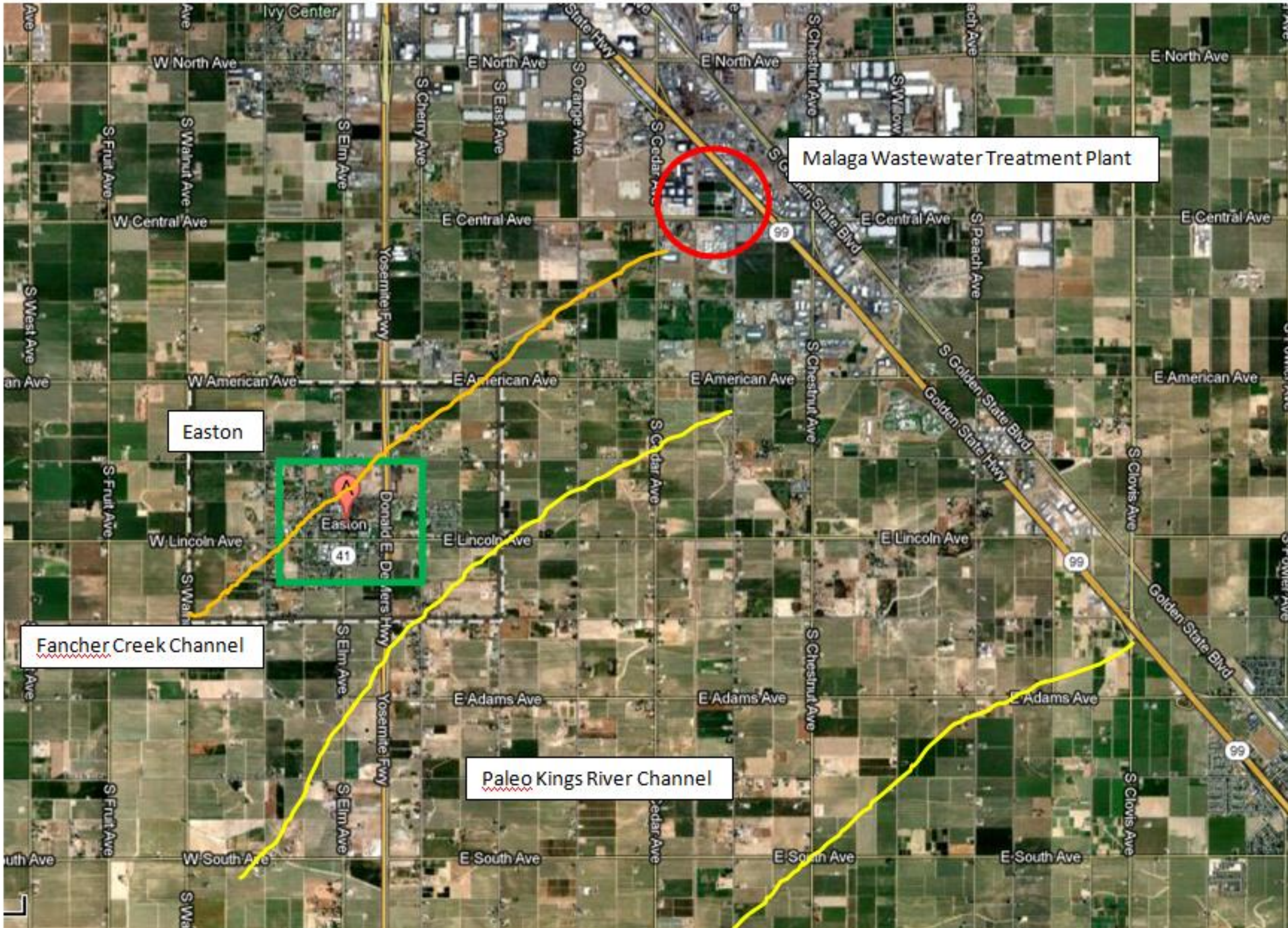


EASTON CALIFORNIA
DBCP ug/l
2012



EASTON CALIFORNIA
TCP ug/l
2012

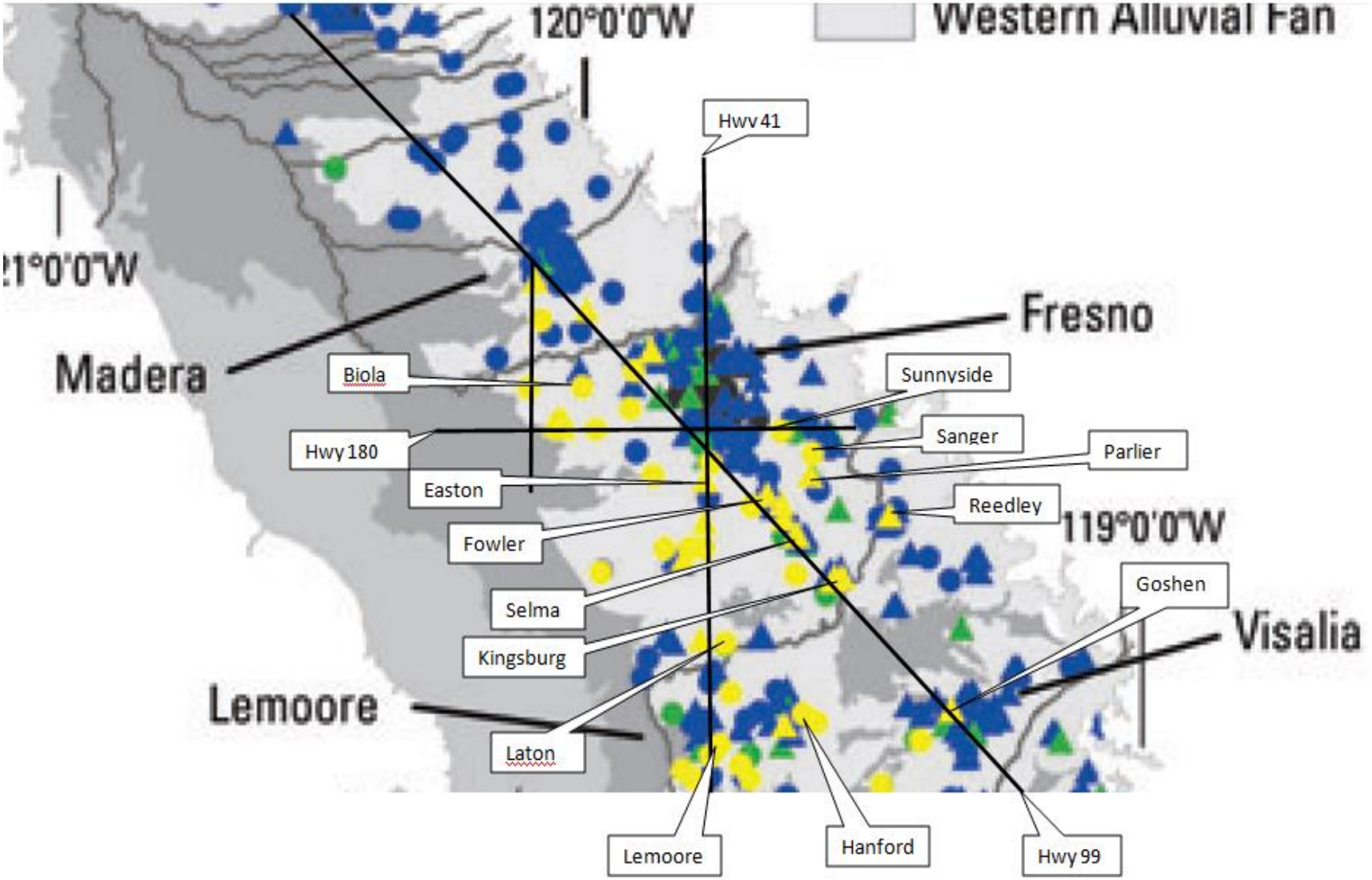


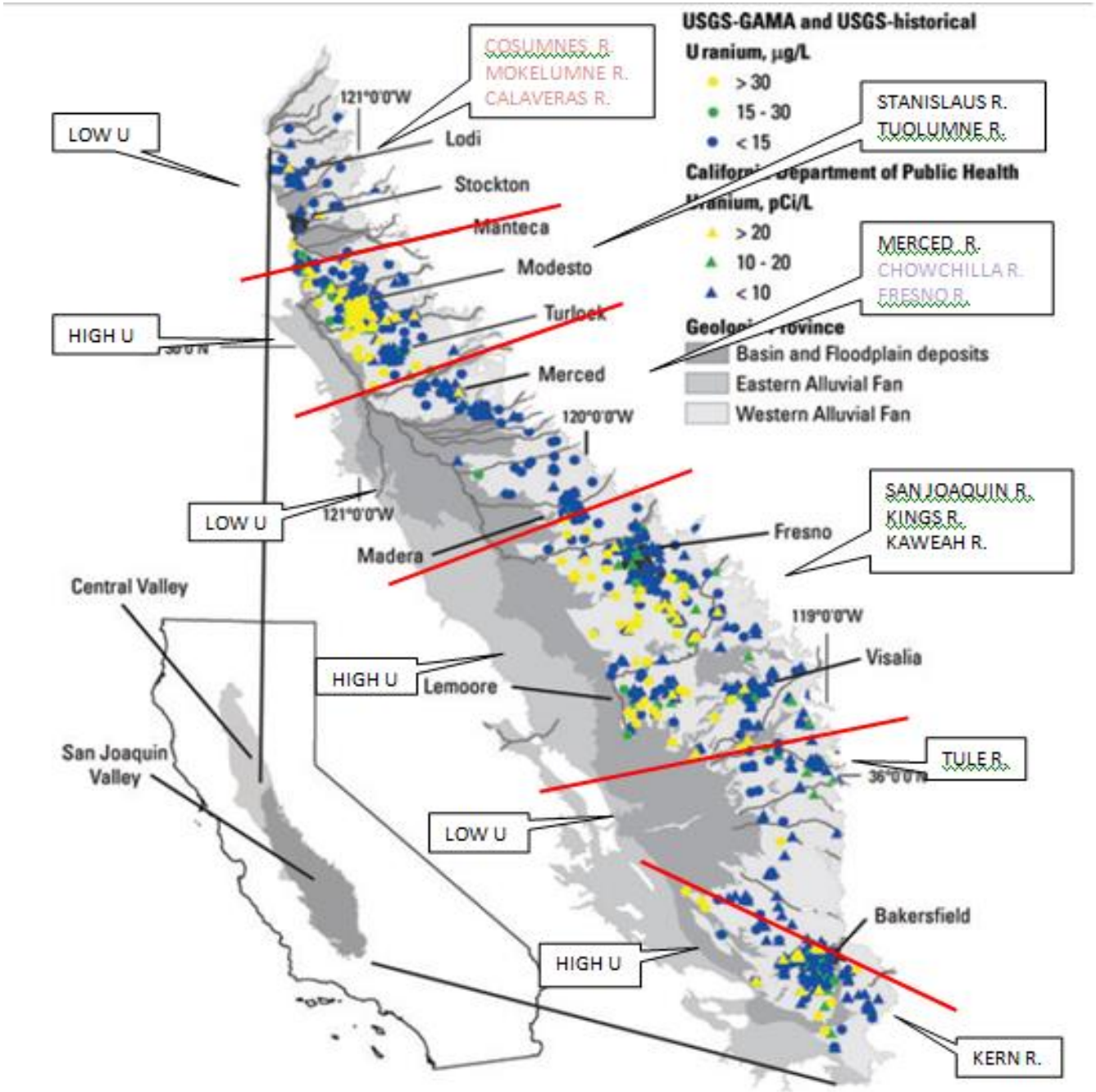


Malaga Wastewater Treatment Plant
Easton
Fancher Creek Channel
Paleo Kings River Channel

Questions:

- Source of the nitrates – sewage (Easton and/or Malaga), agricultural, or soil?
- Figure out the relationship between nitrates and uranium. Are the nitrates influencing the mobilization of the uranium from the sediments?
- Why has the DBCP plume not moved beneath Easton?
- What is the source for TCP – industry along the Highway 99 corridor?
- What is the relationship between subsurface geology and the concentrations of the pollutants? Is the geology controlling groundwater flow and the pollutants there in?


120°0'0"W
Western Alluvial Fan
Hwy 41
21°0'0"W
Fresno
Madera
Biola
Sunnyside
Sanger
Hwy 180
Parlier
Easton
Reedley
119°0'0"W
Fowler
Goshen
Selma
Visalia
Kingsburg
Lemoore
Laton
Lemoore
Hanford
Hwy 99


USGS-GAMA and USGS-historical
Uranium, µg/L
> 30
15 - 30
< 15
Department of Public Health
Uranium, pCi/L
> 20
10 - 20
< 10
Geologic Province
Basin and Floodplain deposits
Eastern Alluvial Fan
Western Alluvial Fan
COSUMNES R.
MOKELUMNE R.
CALAVERAS R.
STANISLAUS R.
TUOLUMNE R.
MERCED R.
CHOWCHILLA R.
FRESNO R.
SAN JOAQUIN R.
KINGS R.
KAWEAH R.
TULE R.
KERN R.
LOW U
HIGH U
LOW U
HIGH U
LOW U
HIGH U
121°0'0"W
120°0'0"W
121°0'0"W
119°0'0"W
Lodi
Stockton
Manteca
Modesto
Turlock
Merced
Fresno
Madera
Visalia
Lemoore
Bakersfield
Central Valley
San Joaquin Valley